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# CANADIAN PATENT

## PROCESS FOR THE PRODUCTION OF A FIBRE-COATED SHEET FORMATION HAVING A HIGH PILE DENSITY

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# PROCESS FOR THE PRODUCTION OF A FIBRE-COATED SHEET FORMATION HAVING A HIGH PILE DENSITY

It is known to apply short fibres, called flocks, by means of an electrostatic field to a backing sheet provided with adhesive. It has been found in practice when using this electrostatic method that it is not possible to exceed a certain pile density, as after a certain flock concentration has been reached on the backing material, further flocks or fibres are not able to penetrate between those already anchored in the adhesive, but are attracted and discharged by these fibres, which are now at the opposite pontential. The effect of this is that flocks remain as excess on and between the short fibres anchored in the adhesive. This excess can be removed, for example, by electrostatic-pneumatic exhaustion.

On the other hand, it is known that fibre-coatings can be produced mechanically if the backing material provided with adhesive is set vibrating by rotating polygonal rods, while flocks are simultaneously applied mechanically from above. Due to the limited orientation of the short fibres on the foundation material, only a moderate pile density is achieved with this process.

Pile materials which are produced by one of these processes have only a limited utility, on account of the moderate pile density. In order to produce hard-wearing fibre-coated articles, for example piled floor coverings, a high pile density is necessary in order to produce a high degree of utility.

According to the invention it has now been found that this high pile density can be achieved if short fibres are introduced endwise by means of an electrostatic field into an adhesive layer applied to a backing sheet, excess short fibres remaining on and between the short fibres anchored in the adhesive and the backing sheet coated with fibres in this way being then guided over rotating polygonal rods. This process has the result that excess short fibres on the fibre-coated sheet are compelled, when the said sheet is guided over the rotating rods which produce a vibration, to be straightened out or erected between the upright fibres already projected into the adhesive layer by means of the electrostatic field, to slide along said upright fibres towards the adhesive layer and thus to fill all gaps. This results in a fibre-coated sheet with a high pile density.

The erection and orientation of the excess fibres can also be assisted if the fibre-coated sheet formation is subjected to an additional, weak, electrostatic field when guided over the rods.

The accompanying drawing illustrates how the process can be carried into effect.

The backing sheet 1, which is provided with an adhesive layer 2, travels successively through an electrostatic fibre-coating zone A and a vibration zone B. In the fibre-coating zone A, the short fibres 3 supplied from above are forced in an upright position into the adhesive layer by means of a strong electrostatic field produced by the electrodes 4 and 4'. After reaching a certain flock concentration, the short fibres 5 remain lying criss-crossed and between the short fibres 6 already sticking in the adhesive. In the

vibration zone B, the fibres 5 disposed in excess on and between the upright fibres 6 are erected by the vibratory movements which are produced by the rotating, polygonal rods 7, so that they gradually slide down into the adhesive layer in the gaps remaining between the short fibres already anchored in the adhesive and are likewise anchored therein. The erection of the excess fibres 5 is facilitated and assisted by a weak electrostatic field, which is produced by means of the electrodes 8 and 8'. In the vibration zone B, no fresh short fibres are supplied, the excess fibres supplied in the fibre-coating zone A merely being introduced here into the interstices between the short fibres secured in the fibre-coating zone A.

WE CLAIM

1) Process for the production of a fibre-coated sheet formation having a high pile density which comprises guiding the sheet formation provided with an adhesive layer first through an electrostatic fibre-coating zone which is supplied with short fibres in excess, and then through a vibration zone which is not supplied with short fibres.

2) Process as claimed in claim 1, wherein said sheet formation is subjected in the vibration zone to an additional weak electrostatic field treatment.

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# PROCESS FOR THE PRODUCTION OF A FIBRE-COATED SHEET FORMATION HAVING A HIGH PILE DENSITY